

STIC Search Report **EIC 1700**

STIC Database Tracking Number: 191438

**TO: Janis Dote
Location: REM 9C79
Art Unit : 1756
May 31, 2006**

Case Serial Number: 10/749269

**From: Kathleen Fuller
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov**

Search Notes

8 STRUCTURES FROM THE QUERY COVERING THE CLAIMS BROADLY.

3 CA REFERENCES FROM THE 8 STRUCTURES-ALL 3 ARE TO THE APPLICANTS.

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: JANIS DOTE Examiner #: 68274 Date: 5/30/06
Art Unit: 1756 Phone Number 30 2-1382 Serial Number: 10749,269
Mail Box and Bldg/Room Location: REM 9079 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Organophotoreceptor with a charge transport material
having two ~~oxo~~ epoxidated - hydrazone groups

Inventors (please provide full names): JUBRAN NUSRAH; TORARSKI, ZBIENIEW; GETAUTIS, VYTAUTAS;
MALINAUSKAS, TADAS; JANKAUSKAS, VYGINAS; GAIDELIS, VALEN
Earliest Priority Filing Date: 12/31/03

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search compound: attached.
claims 29-34.

See attached pages 24 and 25 of specification
for compound in claim 31.

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Ctr.

MAY 31 RECD

Pat. & T.M. Office

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>R. Fuller</u>	NA Sequence (#) _____	STN <u>✓</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>5/31/06</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>40</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>32</u>	Other _____	Other (specify) _____

=> FILE REG

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STRUCTURE FILE UPDATES: 30 MAY 2006 HIGHEST RN 886115-42-0
DICTIONARY FILE UPDATES: 30 MAY 2006 HIGHEST RN 886115-42-0

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 6, 2006

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*
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* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
*

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for details.

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=> FILE HCAPL

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FILE COVERS 1907 - 31 May 2006 VOL 144 ISS 23
FILE LAST UPDATED: 30 May 2006 (20060530/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE L10

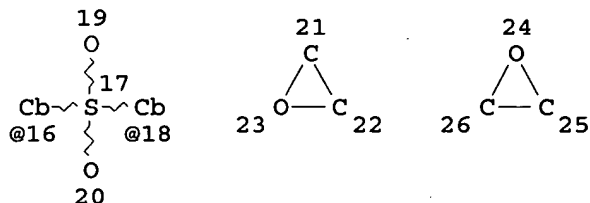
L6 STR

G2~C~N~N~G1~N~N~C~G2
1 2 3 4 5 6 7 8 9

Hy@10

Cb~N
@11 12

Ak~Cb~N
@15 13 14



8 structures from the query

VAR G1=AK/CY/16-4 18-6

VAR G2=10/11/15

NODE ATTRIBUTES:

CONNECT IS E3 RC AT 4

CONNECT IS E3 RC AT 6

CONNECT IS M3 RC AT 21

CONNECT IS M3 RC AT 26

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS M1 N AT 10

GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 26

STEREO ATTRIBUTES: NONE

L8 8 SEA FILE=REGISTRY SSS FUL L6

L10 3 SEA FILE=HCAPLUS ABB=ON L8

3 CA references

=> D L10 BIB ABS IND HITSTR 1-3

L10 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2006:13917 HCAPLUS

DN 144:117731

TI Polymeric charge transport materials having repeating units comprising an aromatic group and a -s- linkage

IN Jubran, Nusrallah; Tokarski, Zbigniew; Gaidelis, Valentas; Getautis, Vytautas; Malinauskas, Tadas; Montrimas, Edmundas; Law, Kam W.

PA USA

SO U.S. Pat. Appl. Publ., 29 pp.

CODEN: USXXCO

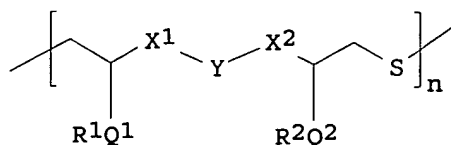
DT Patent

LA English

FAN.CNT 1

applicant

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2006003241	A1	20060105	US 2004-883453	20040701
PRAI	US 2004-883453		20040701		
GI					



I

AB Improved organo photoreceptor comprises an elec. conductive substrate and a photoconductive element on the elec. conductive substrate, the photoconductive element comprising: (a) a polymeric charge transport material having the formula I ($n = 1-100,000$ with an average value of greater than one; Y = aromatic group; $X1$ and $X2$ = a bond or a linking group; $Q1$ and $Q2 = O, S,$ or NR ; and $R, R1,$ and $R2 = H,$ alkyl group, alkenyl group, alkynyl group, acyl group, heterocyclic group, aromatic group); and (b) a charge generating compound Corresponding electrophotog. apparatuses, imaging methods, and methods of preparing the polymeric charge transport material are described.

INCL 430058700; 430096000

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

ST electrophotog photoreceptor polymeric charge transport material

IT Electrophotographic photoconductors (photoreceptors)

(electrophotog photoreceptors polymeric charge transport materials)

IT 122010-64-4P 683273-05-4P 741694-52-0P 857049-30-0P

857058-32-3P 857058-33-4P 867379-59-7P 868162-51-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 872552-29-9P 872552-31-3P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 68-12-2, Dimethylformamide, reactions 80-07-9, 4,4'-Dichlorodiphenyl sulfone 86-28-2, 9-Ethylcarbazole 90-93-7, Bis(4,4'-diethylamino)benzophenone 95-01-2, 2,4-Dihydroxybenzaldehyde 100-63-0, Phenylhydrazine 106-89-8, Epichlorohydrin, reactions 603-34-9, Triphenylamine 1762-95-4, Ammonium thiocyanate 4181-05-9, 4-(Diphenylamino)benzaldehyde 7803-57-8 52131-82-5, 9-(2,3-Epoxypropyl)carbazole

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 14052-65-4P, 4,4'-Dihydrazinodiphenyl sulfone 53566-95-3P 70207-46-4P 95640-42-9P 625077-91-0P 741694-54-2P 857058-42-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(preparation of polymeric charge transport materials for electrophotog photoreceptors)

IT 872552-33-5P 872552-34-6P 872552-35-7P 872552-36-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of polymeric charge transport materials for electrophotog

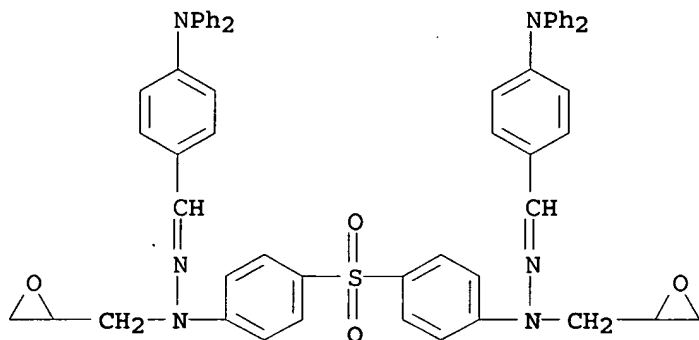
photoreceptors)

IT 857049-30-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

RN 857049-30-0 HCAPLUS

CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



IT 872552-36-8P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of polymeric charge transport materials for electrophotog photoreceptors)

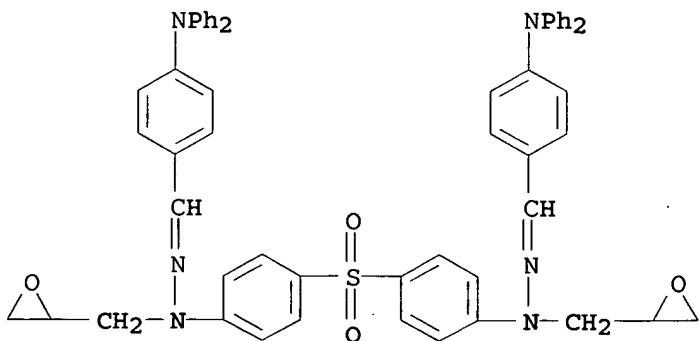
RN 872552-36-8 HCAPLUS

CN Ethanethioamide, polymer with 4-(diphenylamino)benzaldehyde (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

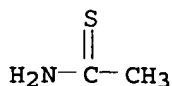
CMF C56 H48 N6 O4 S



CM 2

CRN 62-55-5

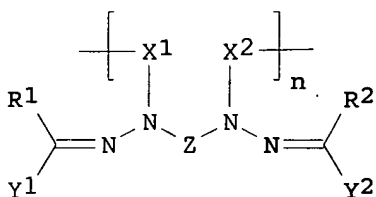
CMF C2 H5 N S



L10 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN
 AN 2005:954089 HCAPLUS
 DN 143:257010
 TI Organophotoreceptor with charge transport compositions
 IN Tokarski, Zbigniew; Montrimas, Edmundas; Grazulevicius, Juozas Vidas;
Jubran, Nusrallah; Malinauskas, Tadas; Gaidelis, Valentas; Getautis, Vytautas.
 PA Samsung Electronics Co., Ltd., S. Korea
 SO Eur. Pat. Appl., 36 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

applicant

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1569040	A2	20050831	EP 2005-251084	20050224
	EP 1569040	A3	20051116		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
	US 2005191570	A1	20050901	US 2004-789077	20040227
	CN 1661483	A	20050831	CN 2005-10052538	20050228
	JP 2005242367	A2	20050908	JP 2005-55003	20050228
PRAI	US 2004-789077	A	20040227		
GI					



I

AB The present invention provides organo photoreceptors comprising an elec. conductive substrate and photoconductive element on the elec. conductive substrate, the photoconductive element having (a) a charge transport composition with the formula I (Y1 and Y2 = arylamine group; X1 and X2 = linking group; R1 and R2 = hydrogen, alkyl group, alkenyl group, heterocyclic group, aromatic group; Z is a bridging group; and n = integers between 1 and 100,000 with an average value greater than 1); and (b) a charge generating compound Corresponding electrophotog. apparatuses and imaging methods (processes) are described, as are charge transport comps.

IC ICM G03G005-07
 ICS G03G005-05; G03G005-06

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other

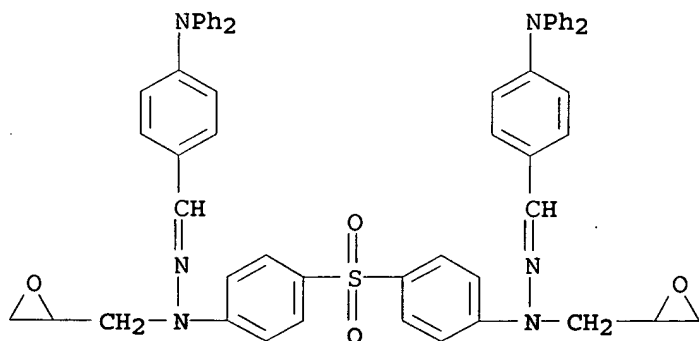
Reprographic Processes)

ST electrophotographic organo photoceptor charge transport compn
IT Electrophotographic photoconductors (photoreceptors)
(organo photoreceptor with charge transport compns.)
IT 863396-31-0P 863396-32-1P 863396-33-2P
863396-34-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(charge transport compns. for organo photoreceptor)
IT 14052-65-4P, 4,4'-Dihydrazinodiphenyl sulfone 857049-30-0P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); RACT (Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)
IT 80-07-9, 4,4'-Dichlorodiphenyl sulfone 106-89-8, Epichlorohydrin,
reactions 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 4181-05-9,
4-(Diphenylamino)benzaldehyde 7570-45-8, 9-Ethyl-3-
carbazolecarboxaldehyde 7803-57-8, Hydrazine hydrate 19362-77-7,
4,4'-Thiobisbenzenethiol
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)
IT 625077-91-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation of charge transport compns. for organo photoreceptor)
IT 863396-31-0P 863396-32-1P 863396-33-2P
863396-34-3P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(charge transport compns. for organo photoreceptor)
RN 863396-31-0 HCAPLUS
CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-
phenylene)bis[(oxiranylmethyl)hydrazone], polymer with
4,4'-thiobis[benzenethiol] (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

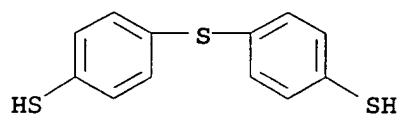
CMF C56 H48 N6 O4 S



CM 2

CRN 19362-77-7

CMF C12 H10 S3



RN 863396-32-1 HCAPLUS

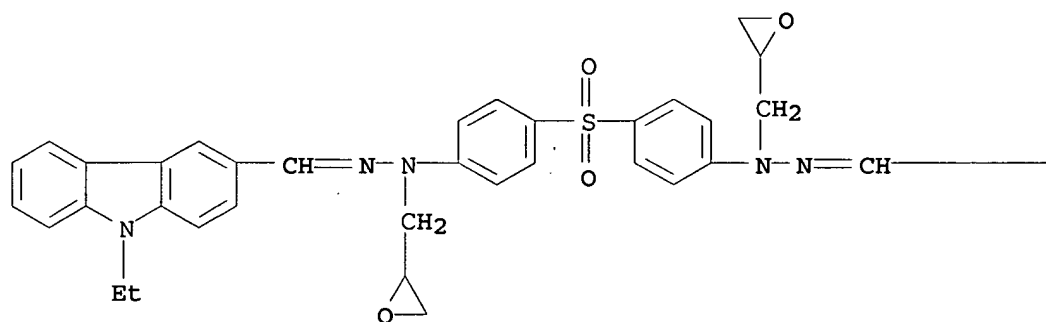
CN 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 4,4'-thiobis[benzenethiol] (9CI) (CA INDEX NAME)

CM 1

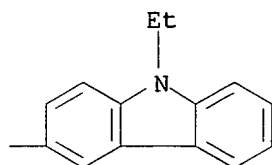
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CMF C48 H44 N6 O4 S

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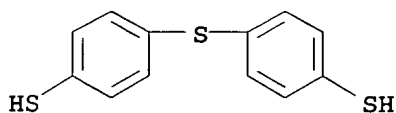
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CM 2

CRN 19362-77-7

CMF C12 H10 S3



RN 863396-33-2 HCAPLUS

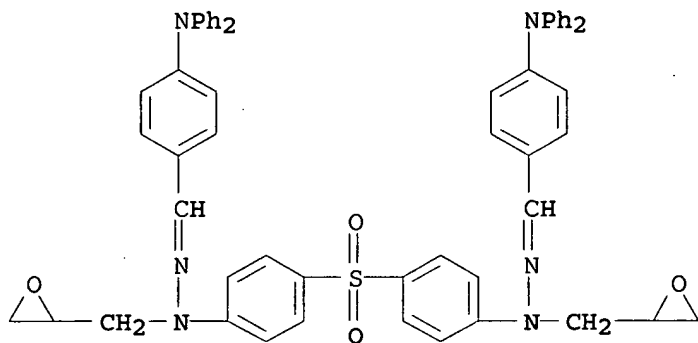
CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 4,4'-thiobis[benzenethiol] (9CI) (CA INDEX NAME)

1,3,4-thiadiazolidine-2,5-dithione (9CI) (CA INDEX NAME)

CM 1

CRN 857049-30-0

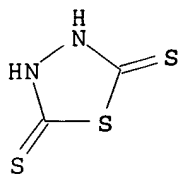
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CRN 1072-71-5

CMF C2 H2 N2 S3



RN 863396-34-3 HCAPLUS

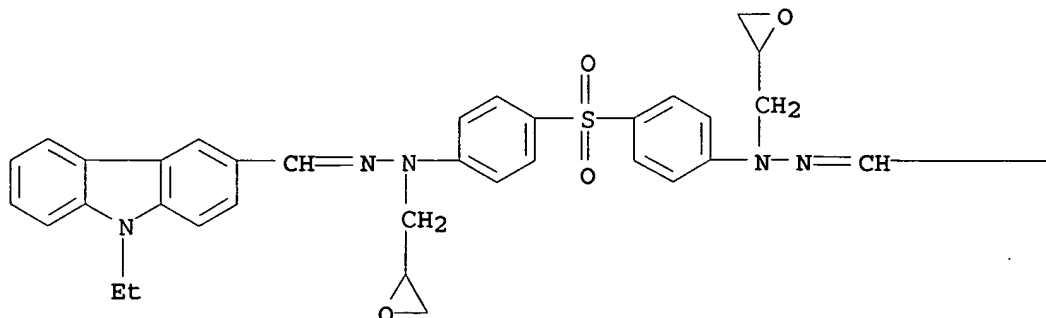
CM 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone], polymer with 1,3,4-thiadiazolidine-2,5-dithione (9CI) (CA INDEX NAME)

CM 1

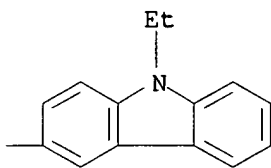
CRN 857049-31-1

CMF C48 H44 N6 O4 S

PAGE 1-A



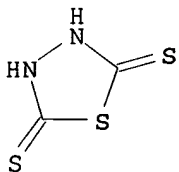
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CM 2

CRN 1072-71-5

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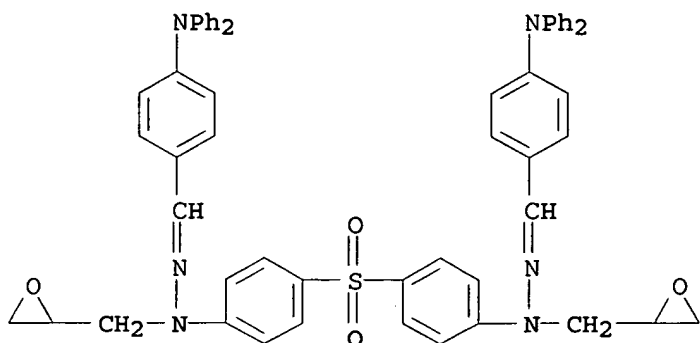


IT 857049-30-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of charge transport comps. for organo photoreceptor)

RN 857049-30-0 HCAPLUS

CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



L10 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2005:582539 HCAPLUS

DN 143:106306

TI Organo photoreceptor with a charge transport material having two epoxide-hydrazone groups

IN Jubran, Nusrallah; Malinauskas, Tadas; Gaidelis, Valentas; Jankauskas, Vygtintas; Tokarski, Zbigniew; Getautis, Vytautas

PA Samsung Electronics Co., Ltd., S. Korea

SO Eur. Pat. Appl., 25 pp.

CODEN: EPXXDW

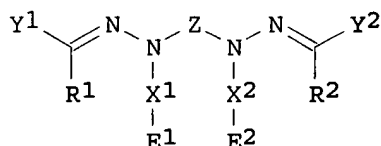
DT Patent

LA English

FAN.CNT 1

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PI	EP 1550914	A1	20050706	EP 2004-257404	20041130
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	US 2005147905	A1	20050707	US 2003-749269	20031231
	CN 1637625	A	20050713	CN 2004-10098241	20041130
	JP 2005196203	A2	20050721	JP 2005-290	20050104
PRAI	US 2003-749269	A	20031231		
OS	MARPAT 143:106306				
GI					

application

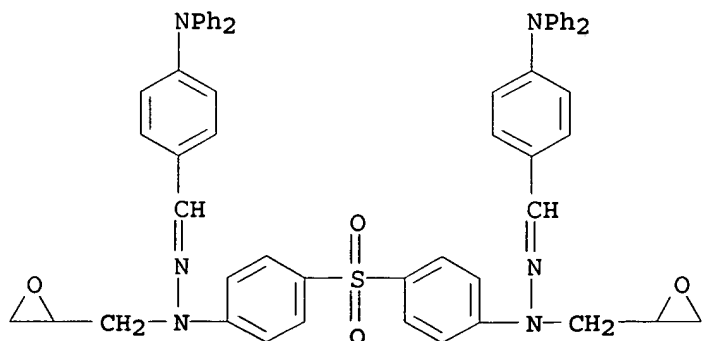


I

AB The present invention provides organo photoreceptors comprising an elec. conductive substrate and. a photoconductive element on the elec. conductive substrate, the photoconductive element comprising: (a) a charge transport material having the formula I (Y1 and Y2 = arylamine group; R1,2 = H, alkyl group, alkenyl group, heterocyclic group, aromatic group; X1 and X2, = bridging groups; E1 and E2 = epoxy group; and Z is a linking group comprising an alkyl group, an alkenyl group, a heterocyclic group, or an

aromatic group); and (b) a charge generating compound. The charge transport materials can be crosslinked to a polymeric binder, either directly or through a crosslinking agent. Corresponding electrophotog. apparatuses and imaging methods (processes) are described, as are corresponding charge transport materials.

- IC ICM G03G005-06
ICS C07D303-06; C07D405-14
- CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST electrophotog organo photoreceptor charge transport material epoxide hydrazone
- IT Electrophotographic photoconductors (photoreceptors)
(organo photoreceptor with charge transport material having two epoxide-hydrazone groups)
- IT **857049-30-0P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport material for organo photoreceptor)
- IT **857049-31-1P 857049-32-2P**
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport material for organo photoreceptor)
- IT 14052-65-4P, 4, 4'-Dihydrazinodiphenyl sulfone
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of charge transport material for organo photoreceptor)
- IT 80-07-9, 4, 4'-Dichlorodiphenyl sulfone 106-89-8, Epichlorohydrin, reactions 479-59-4, Julolidine 4181-05-9, 4-(Diphenylamino)benzaldehyde 7570-45-8, 9-Ethyl-3-carbazole carboxaldehyde 7803-57-8, Hydrazine hydrate
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of charge transport material for organo photoreceptor)
- IT 33985-71-6P 625077-91-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of charge transport material for organo photoreceptor)
- IT **857049-30-0P**
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport material for organo photoreceptor)
- RN 857049-30-0 HCAPLUS
- CN Benzaldehyde, 4-(diphenylamino)-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)

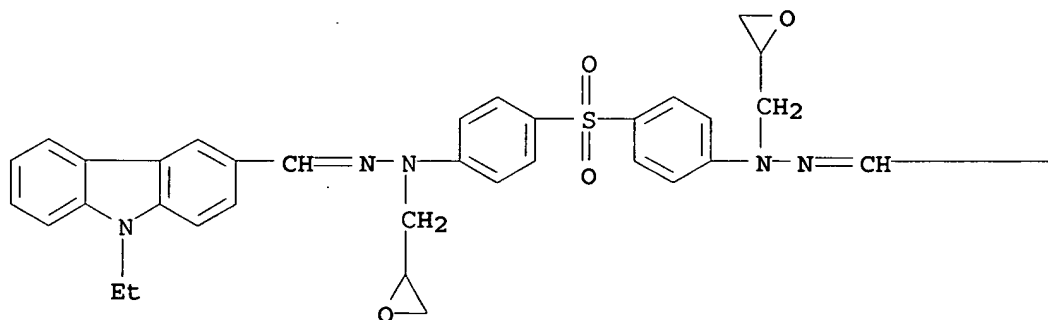


RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(charge transport material for organo photoreceptor)

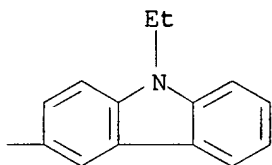
RN 857049-31-1 HCAPLUS

CN 9H-Carbazole-3-carboxaldehyde, 9-ethyl-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)

PAGE 1-A

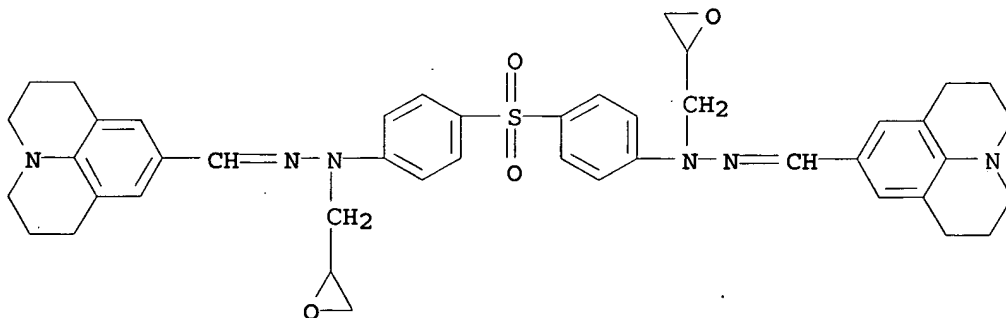


PAGE 1-B



RN 857049-32-2 HCAPLUS

CN 1H,5H-Benzo[ij]quinolizine-9-carboxaldehyde, 2,3,6,7-tetrahydro-, (sulfonyldi-4,1-phenylene)bis[(oxiranylmethyl)hydrazone] (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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